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TIME/AREA DISTRIBUTION AND COMPOSITION OF THE INCIDENTAL KILL OF SMALL CETACEANS IN THE U.S. PURSE-SEINE FISHERY FOR TUNA IN THE EASTERN TROPICAL PACIFIC DURING 1982 AND 1983

by

C. W. Oliver, G. J. Walker
and R. B. Miller

ADMINISTRATIVE REPORT LJ-84-17

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Southwest Fisheries Center
National Marine Fisheries Service, NOAA
La Jolla, California 92038

1984

Working document (SC/36/SM3) prepared for the Small Cetacean Sub-Committee, International Whaling Commission's 36th Annual Meeting, June 1984, Cambridge, England.

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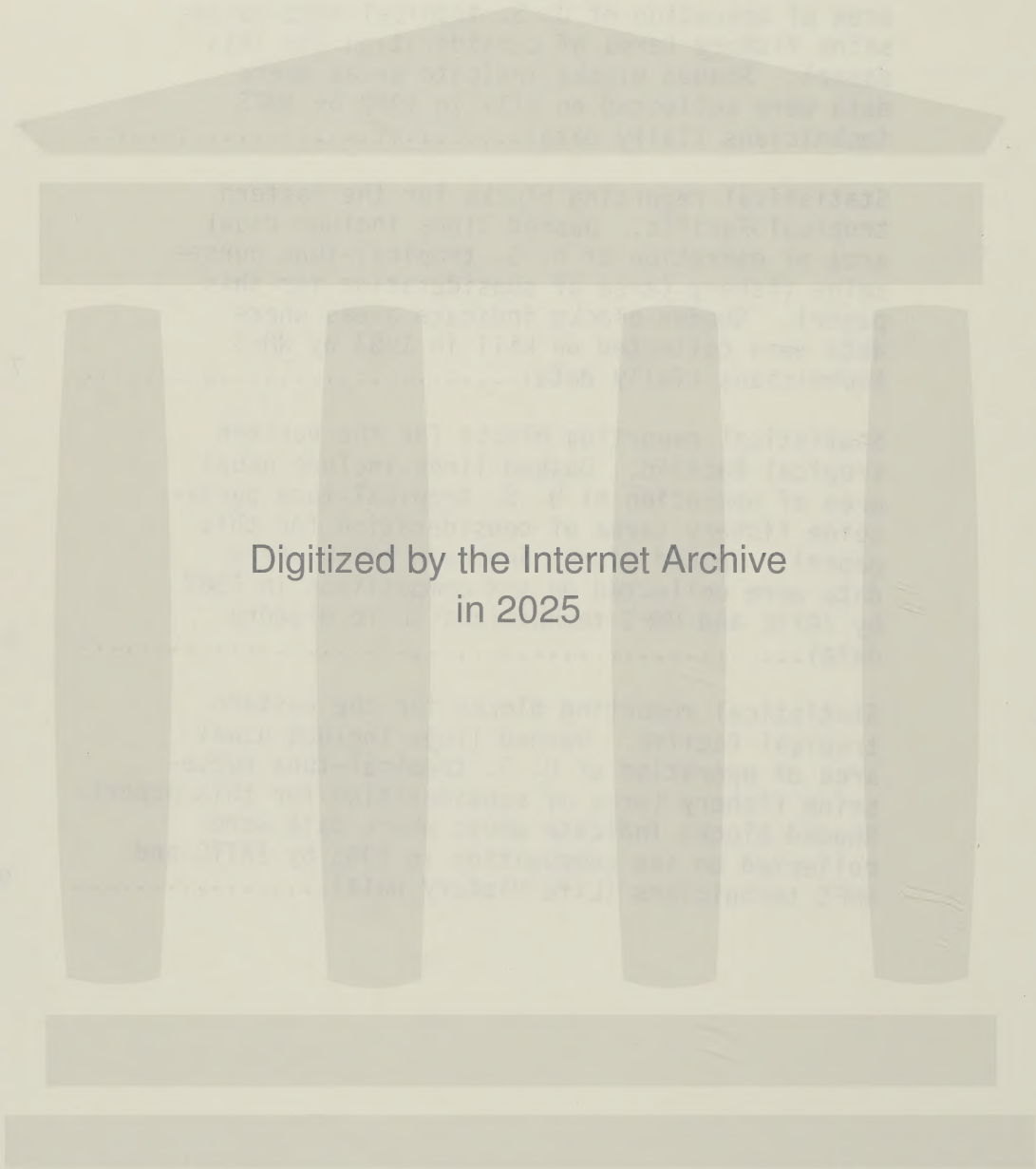

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La Jolla, California 92038

INTRODUCTION

Data on composition of the incidental kill of small cetaceans by the United States purse-seine fishery for tuna have been presented and analyzed in a series of publications (Perrin, Coe and Zweifel, 1976; Perrin, Holts and Miller, 1977; Perrin, Miller and Sloan, 1977; Perrin and Henderson, 1979; Smith, 1979; Henderson, Perrin and Miller, 1980; Perrin and Oliver, 1982; Hammond and Tsai, 1983; Oliver, Walker and Miller, 1983; and Smith, 1983). Prior to January 1979, the sole source of data on the incidental kill by U.S.-registered vessels was provided by the National Marine Fisheries Service (NMFS) Tuna/Porpoise Observer Program. Since then, the Inter-American Tropical Tuna Commission (IATTC) has conducted tuna-dolphin investigations on both U.S. and non-U.S.-registered vessels. The purpose of this paper is to present the data available to NMFS from both sources for the years 1982 and 1983.

Data on the incidental kill and sex composition, by time and area, were collected by both IATTC and NMFS fishery technicians aboard United States-registered vessels. The sampling scheme used to place observers aboard vessels was described in Smith (1979). The field data form used by NMFS technicians to collect kill and sex composition data was shown in Perrin and Oliver (1982) and is the source of what is referred to as "tally data" (Oliver et al. 1983). Similar data, collected by IATTC technicians on kill and sex composition, were not available. The field data form used by both IATTC and NMFS technicians to collect data on the sex composition, reproductive condition, and length frequencies of the kill was shown in Perrin and Oliver (1982); these data are referred to as "life history data" (Oliver et al. 1983).

The management units (stocks) used here were described in Smith (1979, 1983). Since most stocks are delineated geographically, we excluded specimens for which the collection position was unavailable. A review of these management units is presented in Perrin, Scott, Walker, and Cass (1984) and new units are proposed based upon morphological stock differences and distributional breaks. The current allocation of a specimen to a stock involves either an assessment of the species morphological characteristics as described by the fishery technician resulting in assignment of a stock code, or a computer-allocated assignment to a stock based upon the species and its geographic location at collection, or both. The computer-allocated assignments make use of polygonal areas which approximate the known ranges of stocks as described in Smith (1979). The data on kill and sex composition are presented by five-degree block areas (Figs. 1-4).

The laboratory procedures for processing specimens and the criteria for determining sexual maturity were described in Perrin et al. (1976) and Perrin et al. (1977). The computer programs used to summarize data on reproductive condition were described by Henderson and Perrin (1980).

RESULTS

During the year 1982, there were a total of 39 NMFS-observed vessels operating in the eastern tropical Pacific. Of these, 22 fished entirely during 1982, 7 fished during 1981 and 1982, and 10 during 1982 and 1983. Data on the incidental kill (tally data: 5,277 specimens) were obtained from 37 of these cruises, while 30 cruises contributed data on the reproductive condition and/or length frequencies of the kill. Concurrent with this effort, there were 46 IATTC-observed vessels operating in the eastern tropical Pacific (six fished during 1981 and 1982; 33 entirely during 1982; and seven during 1982 and 1983). Of these, 30 contributed data on the reproductive condition and/or length frequencies of the kill. Life history data from both IATTC and NMFS sources during 1982 were obtained for 1,835 specimens.

During the year 1983, United States Federal Court decisions prevented the placement of NMFS observers on U.S.-registered vessels. Consequently, only the 10 NMFS-observed cruises which fished during 1982 and 1983 were potential sources of data on the incidental kill. Of these, six contributed data on the incidental kill (tally data: 381 specimens), and five contributed data on the reproductive condition and/or length frequencies of the kill. These data represent only the first three months of the calendar year. The IATTC observer program was not affected by the court decisions and observers accompanied a total of 37 vessel trips during the year. Of these, seven fished during 1982 and 1983; 27 fished entirely during 1983; and three fished during 1983 and 1984. Life history data from both the IATTC-and-NMFS-observed trips during 1983 amounted to 750 specimens.

Incidental kill data, by month and area, are presented for 5,277 small cetaceans reported by NMFS technicians from the tally data source for 1982 in the Tables 1-5. Similar data for 381 small cetaceans tallied during 1983 are presented in Table 6. Sex data, by quarter of the year and area, obtained from the life history source for 1982, are presented in Tables 7-11 for 1,835 specimens. Similar data for 1983 are presented for 750 specimens in Tables 12-15. Tables 16-19 present the length-frequency data, by stock and year, for 1,118 male and 1,463 female small cetaceans tallied during 1982 and 1983. Reproductive-condition data, by species and year, are presented for 1,211 female dolphins in Tables 20-21.

DISCUSSION

Data on the incidental kill of small cetaceans in the eastern tropical Pacific purse-seine fishery for tuna are reported using the tally data source for 1982 and 1983. Due to the fact that NMFS technicians observed U.S.-registered vessels only during the first three months of 1983, the kill data (Table 6) may not be representative of the fleets activities.

Data on the sex composition of small cetaceans in the eastern tropical Pacific, during 1982 and 1983, are reported herein using the life history data source. Similar data were examined using the 1982 and 1983 tally data

sources. Perrin and Oliver (1982) discussed a number of biases inherent in both data sources, and Oliver et al. (1983) discussed a potential bias between these sources involving spatial and temporal sampling. A chi-squared test, by stock, for all five-degree blocks and months combined, between these data sources did not show a significant difference between the sex compositions, with the exception of the 1982 eastern spinner stock category. For that category, the chi-squared value was 5.72, exceeding the 0.05 critical value of 3.84 for 1 degree of freedom. The tally data source contains more males than females (99 males; 63 females) than the life history source (58 males; 67 females) for the category. Since data on the sex composition from the life history source (2,585 specimens) represent a larger sample than data from the tally source for 1982 and 1983 (1,386 specimens), the former are reported.

The allocation of specimens to coastal spotted dolphin, Stenella attenuata, was reviewed for 1982 by Perrin et al. (1984). A similar review of the 1983 data has not been accomplished. The single adult male coastal spotted dolphin reported herein was allocated to that stock based upon the fishery technician's field identification. This animal measured 250 cm and is the largest specimen reported to date in this report series. The previous largest specimen measured 240 cm, and the next largest 227 cm (Oliver et al. 1983).

The allocation of specimens to stocks of common dolphin, Delphinus delphis, and striped dolphin, Stenella coeruleoalba, is currently based on the specimens' geographic location, with the exception of the Baja neritic and northern tropical stocks of the common dolphin. Perrin et al. (1984) reviewed the morphological characteristics and overlapping ranges of these stocks, and recommend assignment to either stock based upon characteristics. Specimens of common dolphin occurring in five-degree-blocks 168, 169 or 189 (Figs. 1-4), reported herein, were reviewed using these guidelines.

A similar review was done for these stocks as reported in Oliver et al. (1983) and Perrin and Oliver (1982). The allocation of specimens to Baja Neritic during 1979 and 1980 (Perrin and Oliver, 1982) was in error. These specimens should have been included in the category of northern tropical common dolphin.

ACKNOWLEDGEMENTS

The owners, captains and crews of the U.S. tuna purse-seine fleet cooperated fully with the collection of data and specimens. We thank them and the many NMFS and IATTC fishery technicians who carried out the field work. V. L. Cass assisted in the processing of specimens in the laboratory. K. M. Chevalier assisted in the preparation of the tables. H. M. Orr prepared the figures, and S. Richardson typed the manuscript.

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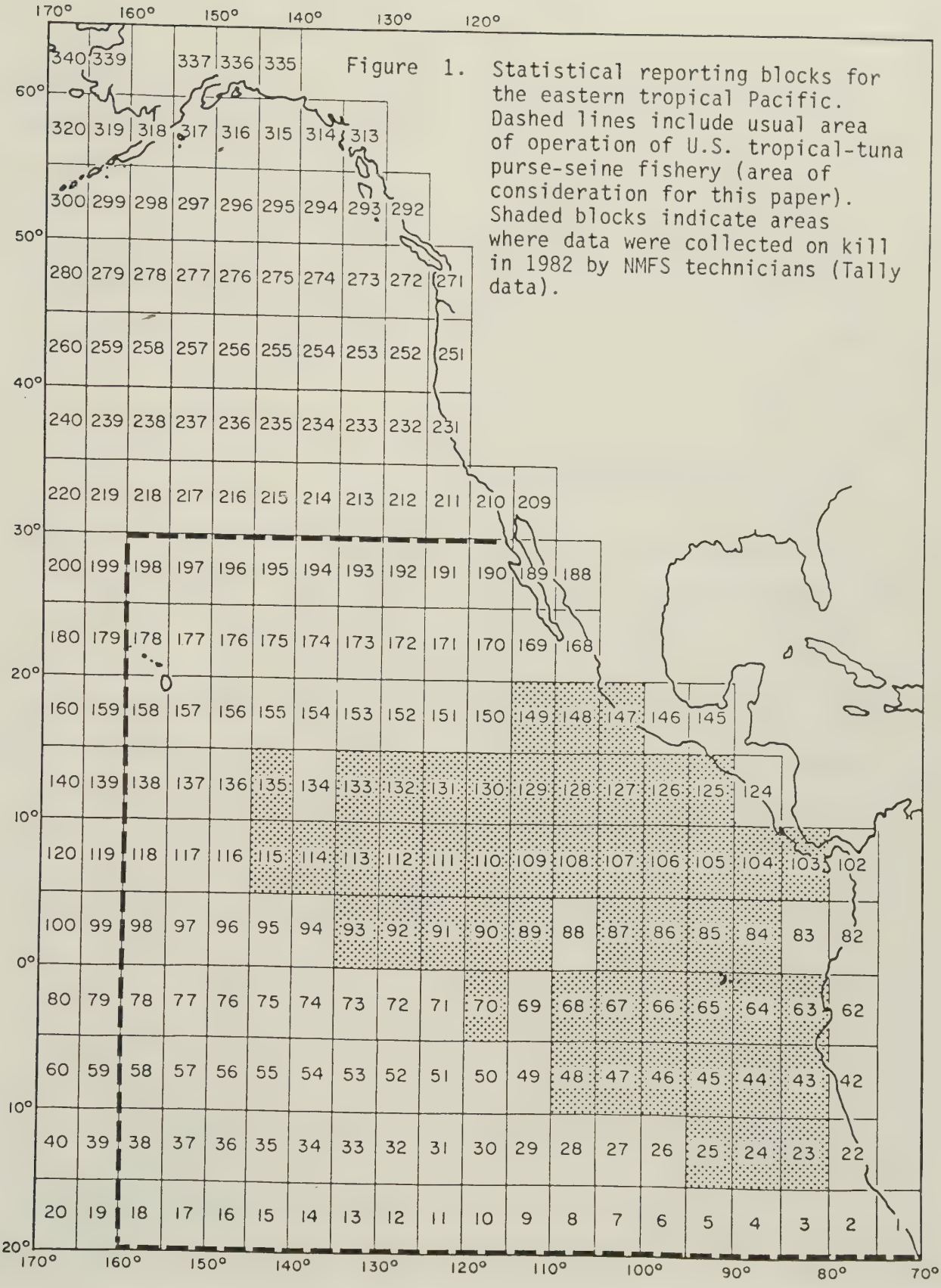

Figure 1. Statistical reporting blocks for the eastern tropical Pacific. Dashed lines include usual area of operation of U.S. tropical-tuna purse-seine fishery (area of consideration for this paper). Shaded blocks indicate areas where data were collected on kill in 1982 by NMFS technicians (Tally data).

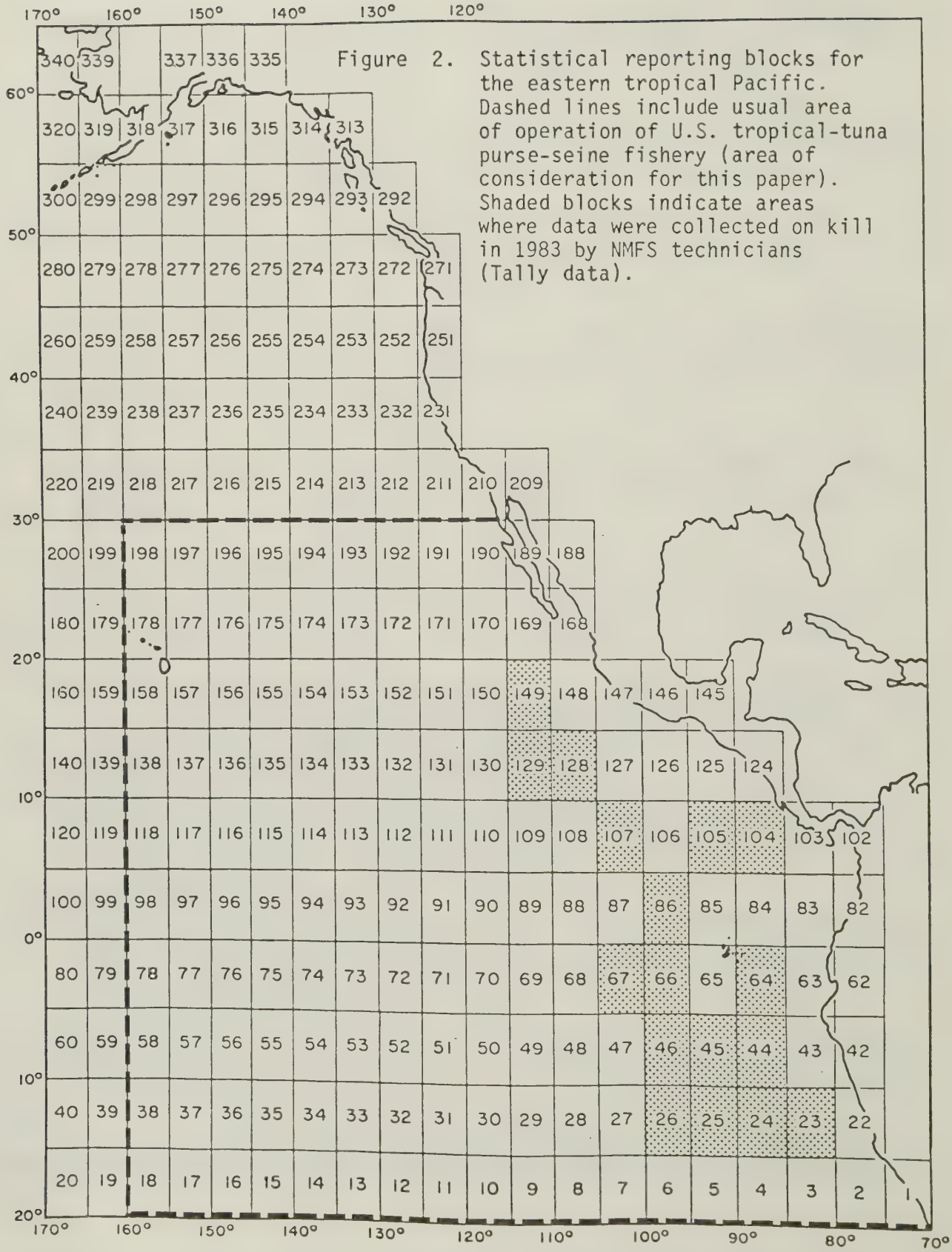

Figure 2. Statistical reporting blocks for the eastern tropical Pacific. Dashed lines include usual area of operation of U.S. tropical-tuna purse-seine fishery (area of consideration for this paper). Shaded blocks indicate areas where data were collected on kill in 1983 by NMFS technicians (Tally data).

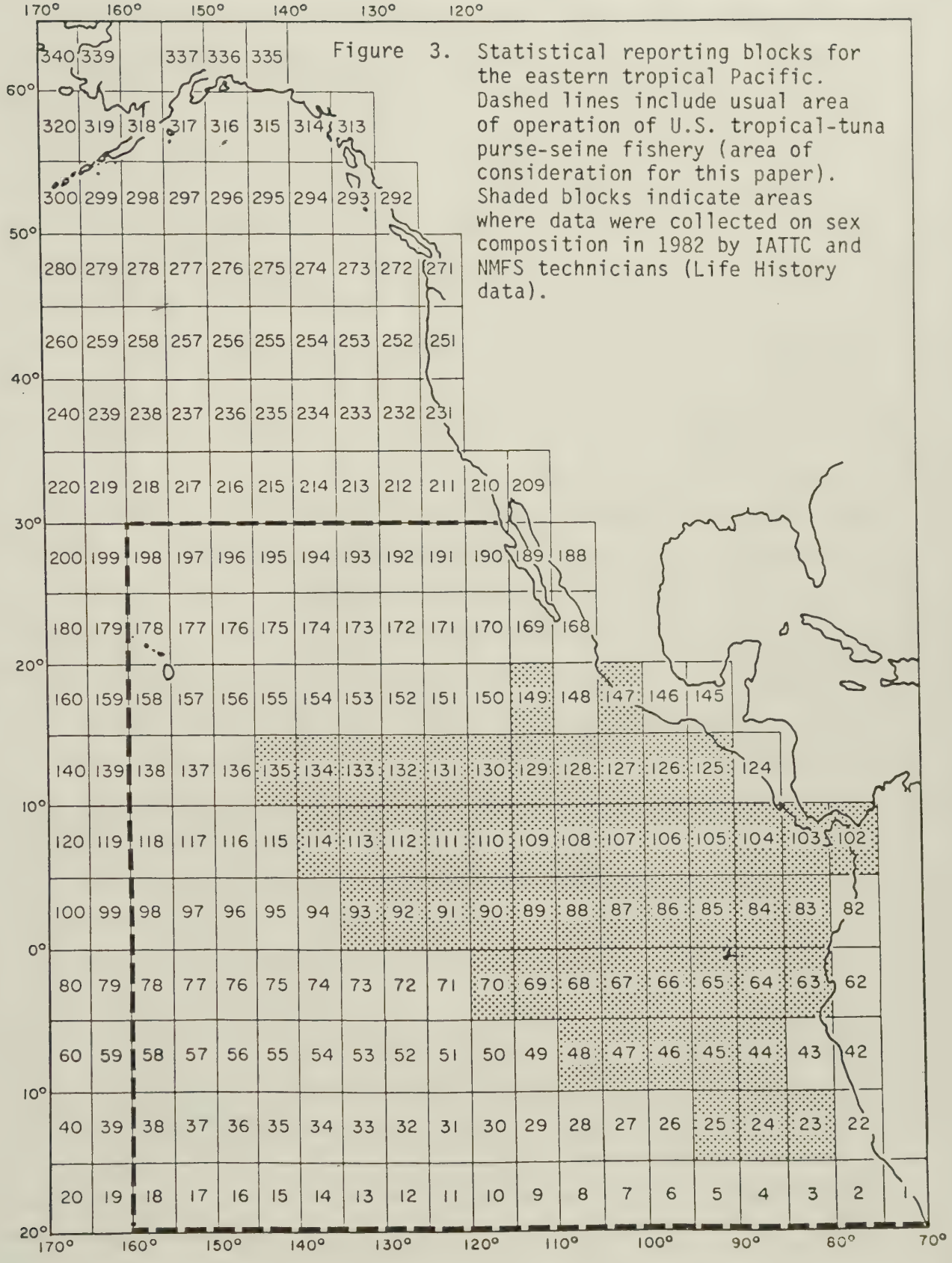

Figure 3. Statistical reporting blocks for the eastern tropical Pacific. Dashed lines include usual area of operation of U.S. tropical-tuna purse-seine fishery (area of consideration for this paper). Shaded blocks indicate areas where data were collected on sex composition in 1982 by IATTC and NMFS technicians (Life History data).

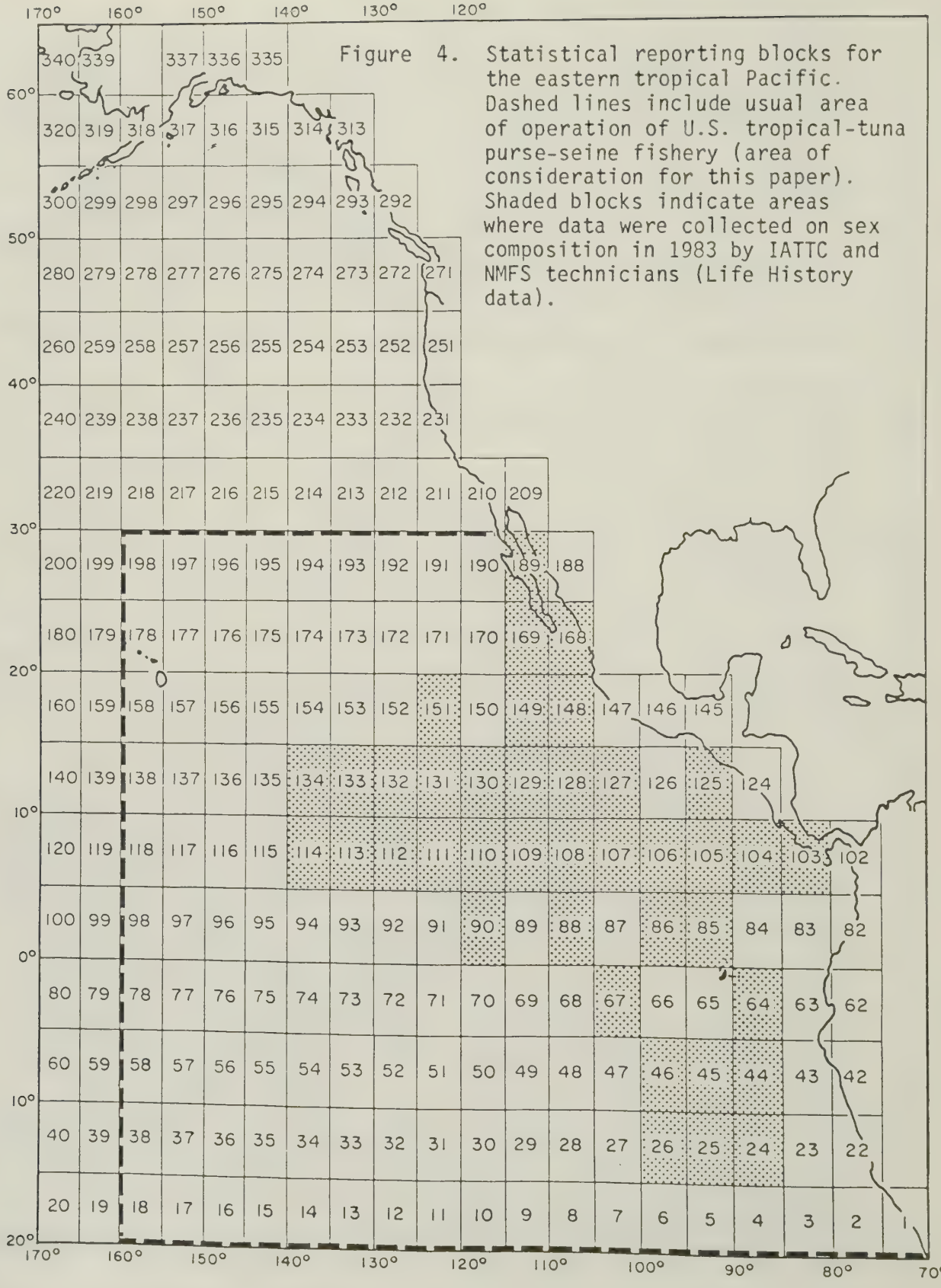

Figure 4. Statistical reporting blocks for the eastern tropical Pacific. Dashed lines include usual area of operation of U.S. tropical-tuna purse-seine fishery (area of consideration for this paper). Shaded blocks indicate areas where data were collected on sex composition in 1983 by IATTC and NMFS technicians (Life History data).

SPECIES AND STOCK	5-DEG BLOCK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL MONTHS
Spotted dolphin:														
Northern offshore	63	0	0	0	0	0	0	0	0	0	15	0	0	15
	65	0	0	0	0	0	0	0	0	0	0	0	67	67
	66	0	0	0	0	0	0	0	0	0	0	0	2	2
	70	0	48	0	0	0	0	0	0	0	0	0	0	48
	84	1	0	0	0	1	0	0	0	4	0	0	0	6
	85	4	56	0	0	0	0	0	0	0	0	0	13	73
	86	0	0	0	0	0	0	0	0	0	0	0	37	37
	87	0	0	0	0	0	0	0	0	0	0	0	6	6
	89	0	2	0	0	0	0	0	0	0	0	0	1	3
	90	0	0	8	0	0	0	0	50	0	0	58	0	116
	91	0	0	26	0	0	0	4	309	59	0	0	0	398
	92	0	0	0	0	1	0	0	15	0	0	0	0	16
	93	0	0	0	0	0	0	0	1	0	0	0	0	1
	104	200	2	13	20	0	0	0	0	0	0	3	9	247
	105	136	130	1	15	0	0	0	0	0	0	0	29	311
	106	223	3	211	73	0	0	0	52	0	0	0	0	562
	107	80	0	42	2	0	0	0	20	0	0	0	0	144
	108	14	0	4	1	0	0	0	0	0	1	0	5	25
	109	0	0	0	0	1	0	0	0	0	0	6	0	7
	110	0	0	0	0	19	0	0	0	0	0	0	0	19
	111	0	0	0	0	6	0	3	4	0	0	0	0	13
	112	0	0	0	0	23	8	2	0	0	0	0	0	33
	113	0	0	0	0	1	20	31	0	0	0	0	0	52
	114	0	0	0	0	57	16	19	0	0	0	0	0	92
	125	0	1	17	1	23	0	0	0	0	0	0	0	42
	126	0	6	30	9	0	0	0	0	0	0	0	0	45
	127	8	0	41	4	2	0	0	0	0	0	0	0	55
	128	23	0	4	0	1	0	0	0	2	0	0	0	30
	129	0	0	126	23	0	0	0	0	0	0	0	0	149
	130	0	0	1	0	0	0	0	0	0	0	0	0	1
	131	0	0	0	0	0	0	0	1	0	0	0	0	1
	132	0	0	0	0	0	78	0	0	0	0	0	0	78
	133	0	0	0	0	2	0	15	0	0	0	0	0	17
	135	0	0	0	0	0	3	0	0	0	0	0	0	3
	147	0	0	0	0	0	0	12	0	0	0	0	0	12
	148	0	0	0	0	0	1	0	0	0	0	0	0	1
	149	0	0	0	0	0	0	0	0	0	0	4	8	12
	TOTAL	689	248	524	148	137	126	86	452	65	16	71	177	2739
Southern offshore	24	0	0	0	0	0	0	0	0	0	0	35	0	35

Table 1. Kill data for spotted dolphin, Stenella attenuata, in the observed kill, by stock, five-degree block and month of the year for 1982. Data collected by NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL MONTHS
	25	0	0	0	0	0	0	0	0	0	2	0	0	2
	43	0	0	0	0	0	0	0	0	4	0	0	0	4
	44	0	0	0	0	0	0	0	0	0	4	2	0	6
	45	0	0	0	0	0	0	0	0	0	0	6	454	460
	46	0	0	0	0	0	0	0	0	0	0	57	5	62
	47	0	0	0	0	0	0	0	0	0	0	0	14	14
	48	0	0	0	0	0	0	0	0	0	0	2	0	2
	64	0	0	0	0	0	0	0	0	0	0	0	2	2
	65	0	0	0	0	0	0	0	0	0	0	5	46	51
	66	0	0	0	0	0	0	0	0	0	0	0	8	8
	67	13	0	0	0	0	0	0	0	0	0	5	0	18
	68	0	23	0	0	0	0	0	0	0	0	149	0	172
	70	0	30	0	0	0	0	0	0	0	0	0	0	30
	TOTAL	13	53	0	0	0	0	0	0	4	6	261	529	866
All stocks	TOTAL	702	301	524	148	137	126	86	452	69	22	332	706	3605

Table 1. Continued

SPECIES AND STOCK	5-DEG BLOCK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL MONTHS
Spinner dolphin:														
Unidentified to stock	129	0	0	5	0	0	0	0	0	0	0	0	0	5
	132	0	0	0	0	0	18	0	0	0	0	0	0	18
	135	0	0	0	0	0	2	0	0	0	0	0	0	2
	TOTAL	0	0	5	0	0	20	0	0	0	0	0	0	25
Eastern	105	0	0	0	2	0	0	0	0	0	0	0	0	2
	107	2	0	1	0	0	0	0	0	0	0	0	0	3
	110	0	0	0	0	5	0	0	0	0	0	0	0	5
	112	0	0	0	0	0	1	0	0	0	0	0	0	1
	125	0	0	42	0	0	0	0	0	0	0	0	0	42
	126	0	3	30	8	0	0	0	0	0	0	0	0	41
	127	2	0	19	0	0	0	0	0	0	0	0	0	21
	128	3	0	12	0	0	0	0	0	0	0	0	0	15
	129	7	2	242	25	0	0	0	0	0	0	0	0	276
	130	0	0	1	0	0	0	0	0	0	0	0	0	1
	132	0	0	0	0	0	82	0	0	0	0	0	0	82
	133	0	0	0	0	1	0	0	0	0	0	0	0	1
	147	0	0	0	0	0	0	37	0	0	0	0	0	37
	149	0	0	0	0	0	0	0	0	0	0	0	24	24
	TOTAL	14	5	347	35	6	83	37	0	0	0	0	24	551
Northern Whitebelly	85	0	15	0	0	0	0	0	0	0	0	0	0	15
	87	0	1	0	0	0	0	0	0	0	0	0	0	1
	89	0	0	0	0	0	0	0	0	0	0	0	1	1
	90	0	0	0	0	0	0	0	8	1	0	0	0	9
	91	0	0	0	0	0	0	3	75	4	0	0	0	82
	103	0	0	0	1	0	0	0	0	0	0	0	0	1
	104	0	0	0	0	0	0	0	0	0	0	0	9	9
	105	0	17	0	0	0	0	0	0	0	0	0	0	17
	107	0	0	23	0	0	0	0	0	0	0	0	0	23
	108	3	0	0	0	0	0	0	0	0	0	0	0	3
	110	0	0	0	0	0	0	0	1	0	0	0	0	1
	111	0	0	0	0	0	3	1	4	0	0	0	0	8
	113	0	0	0	0	0	40	5	0	0	0	0	0	45
	114	0	0	0	0	19	12	23	0	0	0	0	0	54
	115	0	0	0	0	0	18	0	0	0	0	0	0	18
	126	0	25	0	0	0	0	0	0	0	0	0	0	25
	127	0	5	1	0	0	0	0	0	0	0	0	0	6
	130	0	0	0	0	0	0	0	1	0	0	0	0	1
	131	0	0	0	0	0	0	0	1	0	0	0	0	1

Table 2. Kill data for spinner dolphin, Stenella longirostris in the observed kill, by stock, five-degree block and month of the year for 1982. Data collected by NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL MONTHS
	132	0	0	0	0	0	5	0	0	0	0	0	0	5
	133	0	0	0	0	0	0	4	0	0	0	0	0	4
	135	0	0	0	0	0	26	0	0	0	0	0	0	26
	TOTAL	3	63	24	1	19	104	36	90	5	0	0	10	355
Southern Whitebelly	23	0	0	0	0	0	0	0	0	0	0	2	0	2
	24	0	0	0	0	0	0	0	0	0	0	1	0	1
	44	0	0	0	0	0	0	0	0	0	26	2	0	28
	45	0	0	0	0	0	0	0	0	0	0	11	200	211
	65	0	0	0	0	0	0	0	0	0	0	3	5	8
	67	4	0	0	0	0	0	0	0	0	0	0	0	4
	68	2	26	0	0	0	0	0	0	0	0	0	0	28
	70	0	4	0	0	0	0	0	0	0	0	0	0	4
	TOTAL	6	30	0	0	0	0	0	0	0	26	19	205	286
All stocks	TOTAL	23	98	376	36	25	207	73	90	5	26	19	239	1217

Table 2. Continued

SPECIES AND STOCK	5-DEG BLOCK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL MONTHS
Common dolphin:														
Central Tropical	103	0	0	0	0	2	0	0	0	0	0	0	0	2
	104	0	0	0	5	0	0	0	0	0	0	0	1	6
	105	0	86	0	0	0	0	0	0	0	0	0	26	112
	106	0	2	0	0	0	0	0	0	0	0	0	0	2
	TOTAL	0	88	0	5	2	0	0	0	0	0	0	27	122

Table 3. Kill data for common dolphin, Delphinus delphis in the observed kill, by stock, five-degree block and month of the year for 1982. Data collected by NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL MONTHS
Striped dolphin:														
Southern temperate	24	0	0	0	0	0	0	0	0	0	0	179	0	179

Table 4. Kill data for striped dolphin, Stenella coeruleoalba, in the observed kill, by stock, five-degree block and month of the year for 1982. Data collected by NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ALL MONTHS
Rough-toothed dolphin	125	0	0	0	0	0	0	0	0	1	0	0	0	1
Bottlenose dolphin	125	0	0	1	0	0	0	0	0	0	0	0	0	1
	128	1	0	0	0	0	0	0	1	0	0	0	0	2
	TOTAL	1	0	1	0	0	0	0	1	0	0	0	0	3
Short-finned pilot whale	106	0	0	2	0	0	0	0	0	0	0	0	0	2
Unidentified	45	0	0	0	0	0	0	0	0	0	0	1	2	3
	85	1	0	0	0	0	0	0	0	0	0	0	0	1
	91	0	0	0	0	0	0	0	51	0	0	0	0	51
	92	0	0	0	0	0	0	0	1	0	0	0	0	1
	105	0	0	0	2	0	0	0	0	0	0	0	0	2
	106	9	0	0	0	0	0	0	0	0	0	0	0	9
	111	0	0	0	0	0	0	2	0	0	0	0	0	2
	112	0	0	0	0	1	0	0	0	0	0	0	0	1
	113	0	0	0	0	0	4	1	0	0	0	0	0	5
	127	0	0	0	0	1	0	0	0	0	0	0	0	1
	128	0	0	0	0	1	0	0	0	0	0	0	0	1
	129	0	0	34	8	0	0	0	0	0	0	0	0	42
	132	0	0	0	0	0	24	0	0	0	0	0	0	24
	147	0	0	0	0	0	0	5	0	0	0	0	0	5
	TOTAL	10	0	34	10	3	28	8	52	0	0	1	2	148

Table 5. Kill data for rough-toothed dolphin, Steno bredanenis, bottlenose dolphin, Tursiops truncatus, short-finned pilot whale, Globicephala macrorhynchus and unidentified small cetaceans in the observed kill, by five-degree block and month of the year for 1982. Data collected by NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	JAN	FEB	MAR	ALL MONTHS
Spotted dolphin:					
Northern offshore	64	3	0	0	3
	65	2	0	0	2
	86	15	0	0	15
	105	0	2	2	4
	107	0	0	114	114
	128	25	0	0	25
	129	3	0	0	3
	149	3	0	0	3
	TOTAL	57	2	116	175
Southern offshore	23	0	1	0	1
	24	0	6	0	6
	25	3	11	0	14
	26	16	2	0	18
	44	1	0	0	1
	45	0	15	0	15
	46	31	4	0	35
	66	9	0	0	9
	67	16	0	0	16
	TOTAL	76	39	0	115
All stocks	TOTAL	133	41	116	290
Spinner dolphin:					
Eastern	128	24	0	0	24
	129	3	0	0	3
	TOTAL	27	0	0	27
Northern Whitebelly	107	0	0	3	3
Southern Whitebelly	23	0	1	0	1
	24	0	10	0	10
	25	6	3	0	9
	26	1	0	0	1
	45	0	9	0	9
	46	3	2	0	5
	66	5	0	0	5
	67	2	0	0	2
	TOTAL	17	25	0	42
All stocks	TOTAL	44	25	3	72
Common dolphin:					
Central Tropical	104	0	19	0	19

Table 6. Kill data for spotted dolphin, Stenella attenuata, spinner dolphin, Stenella longirostris, and common dolphin, Delphinus delphis, in the observed kill, by stock, five-degree block, and month of the year for 1983. Data collected by NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1			QUARTER 2			QUARTER 3			QUARTER 4			ALL QUARTERS		
		M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL
Spotted dolphin:																
Northern offshore	63	0	0	0	0	0	0	0	0	0	9	6	15	9	6	15
	64	0	0	0	0	0	0	0	0	0	3	4	7	3	4	7
	65	0	0	0	0	0	0	0	0	0	20	20	40	20	20	40
	66	0	0	0	0	0	0	0	0	0	4	4	8	4	4	8
	70	5	4	9	0	0	0	0	0	0	0	0	0	5	4	9
	83	0	0	0	0	0	0	0	0	0	3	12	15	3	12	15
	84	1	0	1	0	0	0	1	1	2	0	0	0	2	1	3
	85	2	6	8	0	0	0	0	0	0	7	12	19	9	18	27
	86	0	0	0	0	0	0	0	0	0	24	30	54	24	30	54
	87	0	0	0	0	0	0	0	3	3	1	1	2	1	4	5
	89	1	0	1	0	0	0	0	0	0	0	4	4	1	4	5
	90	8	17	25	0	0	0	4	7	11	11	9	20	23	33	56
	91	8	10	18	0	0	0	8	9	17	7	5	12	23	24	47
	92	0	0	0	0	0	0	2	4	6	0	0	0	2	4	6
	93	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
	103	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
	104	1	2	3	2	2	4	0	0	0	1	1	2	4	5	9
	105	14	29	43	4	9	13	0	0	0	9	10	19	27	48	75
	106	67	71	138	45	46	91	15	35	50	0	0	0	127	152	279
	107	9	16	25	0	1	1	0	1	1	0	0	0	9	18	27
	108	5	12	17	1	0	1	0	0	0	0	1	1	6	13	19
	109	0	0	0	0	0	0	0	0	0	3	4	7	3	4	7
	110	0	0	0	7	13	20	0	0	0	0	0	0	7	13	20
	111	0	0	0	6	11	17	10	5	15	0	0	0	16	16	32
	112	0	0	0	3	7	10	3	4	7	0	0	0	6	11	17
	113	0	0	0	7	0	7	12	14	26	0	0	0	19	14	33
	114	0	0	0	18	16	34	9	13	22	0	0	0	27	29	56
	125	3	7	10	1	0	1	0	0	0	0	0	0	4	7	11
	126	11	6	17	1	0	1	0	0	0	0	0	0	12	6	18
	127	3	6	9	1	2	3	0	0	0	0	0	0	4	8	12
	128	6	10	16	0	0	0	0	2	2	0	1	1	6	13	19
	129	20	20	40	5	11	16	0	0	0	0	0	0	25	31	56
	130	0	1	1	0	0	0	3	1	4	0	0	0	3	2	5
	131	0	0	0	1	2	3	7	1	8	0	0	0	8	3	11
	132	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2
	133	0	0	0	0	2	2	6	9	15	0	0	0	6	11	17
	134	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
	135	0	0	0	1	2	3	0	0	0	0	0	0	1	2	3
	147	0	0	0	0	1	1	0	1	1	0	0	0	0	2	2
	TOTAL	164	217	381	103	125	228	80	114	194	102	125	227	449	581	1030

Table 7. Sex data, from life history data for spotted dolphin, Stenella attenuata, in the observed kill, by stock, five-degree block and quarter of the year for 1982. Data collected by IATTC and NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1 M	F	TOTAL	QUARTER 2 M	F	TOTAL	QUARTER 3 M	F	TOTAL	QUARTER 4 M	F	TOTAL	ALL QUARTERS M	F	TOTAL
Southern offshore	23	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
	24	0	0	0	0	0	0	0	0	0	14	16	30	14	16	30
	44	0	0	0	0	0	0	0	0	0	3	8	11	3	8	11
	45	0	0	0	0	0	0	0	0	0	43	65	108	43	65	108
	46	0	0	0	0	0	0	0	0	0	19	25	44	19	25	44
	47	0	0	0	0	0	0	0	0	0	0	2	2	0	2	2
	48	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
	64	0	0	0	0	0	0	0	0	0	2	3	5	2	3	5
	65	0	0	0	0	0	0	0	0	0	11	15	26	11	15	26
	66	0	0	0	0	0	0	0	0	0	5	10	15	5	10	15
	67	0	0	0	0	0	0	0	0	0	1	9	10	1	9	10
	68	1	1	2	0	0	0	0	0	0	3	5	8	4	6	10
	69	12	19	31	0	0	0	0	0	0	0	0	0	12	19	31
	70	7	9	16	0	0	0	0	0	0	0	0	0	7	9	16
	TOTAL	20	29	49	0	0	0	0	0	0	101	160	261	121	189	310
All stocks	TOTAL	184	246	430	103	125	228	80	114	194	203	285	488	570	770	1340

Table 7. Continued

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1 M	F	TOTAL	QUARTER 2 M	F	TOTAL	QUARTER 3 M	F	TOTAL	QUARTER 4 M	F	TOTAL	ALL QUARTERS M	F	TOTAL
Spinner dolphin:																
Unidentified to stock	107	2	0	2	0	0	0	0	0	0	0	0	0	2	0	2
	125	2	2	4	0	0	0	0	0	0	0	0	0	2	2	4
	126	1	3	4	0	0	0	0	0	0	0	0	0	1	3	4
	135	0	0	0	1	1	2	0	0	0	0	0	0	1	1	2
	TOTAL	5	5	10	1	1	2	0	0	0	0	0	0	6	6	12
Eastern	105	0	0	0	1	1	2	0	0	0	0	0	0	1	1	2
	107	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
	109	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1
	125	19	13	32	1	3	4	0	0	0	0	0	0	20	16	36
	126	1	3	4	1	0	1	0	0	0	0	0	0	2	3	5
	127	3	3	6	0	0	0	0	0	0	0	0	0	3	3	6
	128	0	3	3	0	0	0	0	0	0	0	2	2	0	5	5
	129	18	21	39	2	4	6	0	0	0	0	0	0	20	25	45
	130	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
	133	0	0	0	1	3	4	1	0	1	0	0	0	2	3	5
	147	0	0	0	1	0	1	6	2	8	0	0	0	7	2	9
	149	0	0	0	0	0	0	0	0	0	2	7	9	2	7	9
	TOTAL	41	45	86	7	11	18	8	2	10	2	9	11	58	67	125
Northern Whitebelly	85	1	10	11	0	0	0	0	0	0	3	2	5	4	12	16
	86	0	0	0	0	0	0	0	0	0	0	2	2	0	2	2
	88	0	0	0	0	0	0	0	0	0	1	1	2	1	1	2
	89	0	0	0	0	0	0	0	0	0	2	1	3	2	1	3
	90	0	0	0	0	0	0	0	0	0	8	5	13	8	5	13
	91	0	0	0	0	0	0	1	1	2	0	1	1	1	2	3
	104	0	0	0	0	0	0	0	0	0	1	3	4	1	3	4
	105	1	5	6	0	0	0	0	0	0	0	0	0	1	5	6
	106	0	1	1	0	1	1	0	0	0	0	0	0	0	2	2
	107	11	4	15	0	0	0	0	0	0	0	0	0	11	4	15
	110	0	0	0	3	0	3	0	0	0	0	0	0	3	0	3
	111	0	0	0	2	3	5	1	3	4	0	0	0	3	6	9
	112	0	0	0	0	2	2	1	1	2	0	0	0	1	3	4
	113	0	0	0	1	3	4	1	4	5	0	0	0	2	7	9
	114	0	0	0	6	8	14	2	2	4	0	0	0	8	10	18
	130	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
	131	0	0	0	3	5	8	5	6	11	0	0	0	8	11	19
	133	0	0	0	0	0	0	1	4	5	0	0	0	1	4	5
	134	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
	135	0	0	0	14	12	26	0	0	0	0	0	0	14	12	26
	TOTAL	13	20	33	29	34	63	12	23	35	15	15	30	69	92	161

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1 M	F	TOTAL	QUARTER 2 M	F	TOTAL	QUARTER 3 M	F	TOTAL	QUARTER 4 M	F	TOTAL	ALL QUARTERS M	F	TOTAL
Southern Whitebelly	23	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
	24	0	0	0	0	0	0	0	0	0	2	2	4	2	2	4
	25	0	0	0	0	0	0	0	0	0	2	2	4	2	2	4
	44	0	0	0	0	0	0	0	0	0	1	1	2	1	1	2
	45	0	0	0	0	0	0	0	0	0	27	28	55	27	28	55
	46	0	0	0	0	0	0	0	0	0	3	2	5	3	2	5
	64	0	0	0	0	0	0	0	0	0	21	10	31	21	10	31
	65	0	0	0	0	0	0	0	0	0	6	4	10	6	4	10
	66	0	0	0	0	0	0	0	0	0	5	4	9	5	4	9
	68	1	1	2	0	0	0	0	0	0	0	0	0	1	1	2
	69	0	4	4	0	0	0	0	0	0	0	0	0	0	4	4
	70	1	1	2	0	0	0	0	0	0	0	0	0	1	1	2
	TOTAL	2	6	8	0	0	0	0	0	0	67	54	121	69	60	129
All stocks	TOTAL	61	76	137	37	46	83	20	25	45	84	78	162	202	225	427

Table 8. Continued

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1 M	F	TOTAL	QUARTER 2 M	F	TOTAL	QUARTER 3 M	F	TOTAL	QUARTER 4 M	F	TOTAL	ALL QUARTERS M	F	TOTAL
Common dolphin:																
Northern Tropical	149	0	0	0	0	0	0	0	0	0	2	2	4	2	2	4
Central Tropical	104	0	1	1	0	4	4	0	0	0	1	0	1	1	5	6
	105	10	19	29	0	0	0	0	0	0	1	10	11	11	29	40
	106	0	0	0	0	0	0	2	7	9	0	0	0	2	7	9
	TOTAL	10	20	30	0	4	4	2	7	9	2	10	12	14	41	55
All stocks	TOTAL	10	20	30	0	4	4	2	7	9	4	12	16	16	43	59

Table 9. Sex data, from life history data for common dolphin, Delphinus delphis, in the observed kill, by stock, five-degree block and quarter of the year for 1982. Data collected by IATTC and NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1 M	F	TOTAL	QUARTER 2 M	F	TOTAL	QUARTER 3 M	F	TOTAL	QUARTER 4 M	F	TOTAL	ALL QUARTERS M	F	TOTAL
Striped dolphin:																
Southern temperate	24	0	0	0	0	0	0	0	0	0	4	2	6	4	2	6

Table 10. Sex data, from life history data for striped dolphin, Stenella coeruleoalba, in the observed kill, by stock five-degree block and quarter of the year for 1982. Data collected by IATTC and NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1			QUARTER 2			QUARTER 3			QUARTER 4			ALL QUARTERS		
		M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL
Rough-toothed dolphin	102	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
	125	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
	TOTAL	0	0	0	0	0	0	0	1	1	0	1	1	0	2	2
Bottlenose dolphin	128	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1

Table II. Sex data, from life history data for rough-toothed dolphin, Steno bredanensis, and bottlenose dolphin, Tursiops truncatus, in the observed kill, by five-degree block and quarter of the year for 1982. Data collected by IATTC and NMFS observers on U.S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1			QUARTER 2			QUARTER 3			QUARTER 4			ALL QUARTERS		
		M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL
Spotted dolphin:																
Northern offshore	85	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
	86	4	7	11	0	0	0	0	0	0	0	0	0	4	7	11
	88	3	2	5	0	0	0	0	0	0	0	0	0	3	2	5
	90	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1
	103	0	0	0	0	0	0	1	1	2	0	0	0	1	1	2
	105	8	7	15	5	3	8	0	0	0	0	0	0	13	10	23
	106	0	0	0	1	3	4	3	2	5	0	0	0	4	5	9
	107	0	0	0	0	0	0	2	1	3	0	0	0	2	1	3
	108	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
	109	0	0	0	3	3	6	0	0	0	0	0	0	3	3	6
	110	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1
	111	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1
	112	0	0	0	0	0	0	2	2	4	0	0	0	2	2	4
	113	0	0	0	9	6	15	0	1	1	0	0	0	9	7	16
	114	0	0	0	7	7	14	0	0	0	0	0	0	7	7	14
	127	0	0	0	1	2	3	0	0	0	0	0	0	1	2	3
	128	1	0	1	7	14	21	5	12	17	0	0	0	13	26	39
	129	3	6	9	2	3	5	0	0	0	1	0	1	6	9	15
	130	0	0	0	9	4	13	0	0	0	0	0	0	9	4	13
	131	0	0	0	24	20	44	0	0	0	0	0	0	24	20	44
	132	0	0	0	0	0	0	5	17	22	0	0	0	5	17	22
	133	0	0	0	0	2	2	1	1	2	0	0	0	1	3	4
	134	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1
	148	0	0	0	0	1	1	2	5	7	0	0	0	2	6	8
	149	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
	168	0	0	0	3	1	4	0	0	0	0	0	0	3	1	4
	TOTAL	20	24	44	72	70	142	22	42	64	1	1	2	115	137	252
Southern offshore	23	3	2	5	0	0	0	0	0	0	0	0	0	3	2	5
	24	5	4	9	0	0	0	0	0	0	4	12	16	9	16	25
	25	3	6	9	0	0	0	0	0	0	0	0	0	3	6	9
	26	10	15	25	0	0	0	0	0	0	0	0	0	10	15	25
	44	0	0	0	0	0	0	0	0	0	11	23	34	11	23	34
	45	4	8	12	0	0	0	0	0	0	2	4	6	6	12	18
	46	18	18	36	0	0	0	0	0	0	0	3	3	18	21	39
	64	0	0	0	0	0	0	0	0	0	1	6	7	1	6	7
	66	4	2	6	0	0	0	0	0	0	0	0	0	4	2	6
	67	3	3	6	0	0	0	0	0	0	0	0	0	3	3	6
	TOTAL	50	58	108	0	0	0	0	0	0	18	48	66	68	106	174

Table 12. Sex data, from life history data for spotted dolphin, Stenella attenuata, in the observed kill, by stock, five-degree block and quarter of the year for 1983. Data collected by IATTC and NMFS observers on U.S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1 M	F	TOTAL	QUARTER 2 M	F	TOTAL	QUARTER 3 M	F	TOTAL	QUARTER 4 M	F	TOTAL	ALL QUARTERS M	F	TOTAL
Coastal	103	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1
	TOTAL	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1
All stocks	TOTAL	70	82	152	72	70	142	23	42	65	19	49	68	184	243	427

Table 12. Continued

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1 M	F	TOTAL	QUARTER 2 M	F	TOTAL	QUARTER 3 M	F	TOTAL	QUARTER 4 M	F	TOTAL	ALL QUARTERS M	F	TOTAL
Spinner dolphin:																
Unidentified	128	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
Eastern	105	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1
	128	0	2	2	2	1	3	0	1	1	0	0	0	2	4	6
	129	2	1	3	0	2	2	0	0	0	6	4	10	8	7	15
	130	0	0	0	2	2	4	0	0	0	0	0	0	2	2	4
	131	0	0	0	5	8	13	0	0	0	0	0	0	5	8	13
	148	0	0	0	0	2	2	1	0	1	0	0	0	1	2	3
	TOTAL	2	3	5	9	15	24	2	1	3	6	4	10	19	23	42
Northern Whitebelly	86	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
	112	0	0	0	0	0	0	2	0	2	0	0	0	2	0	2
	114	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1
	128	0	0	0	0	0	0	6	8	14	0	0	0	6	8	14
	130	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1
	131	0	0	0	2	1	3	1	0	1	0	0	0	3	1	4
	132	0	0	0	1	1	2	7	12	19	0	0	0	8	13	21
	133	0	0	0	20	20	40	11	27	38	0	0	0	31	47	78
	151	0	0	0	0	0	0	3	2	5	0	0	0	3	2	5
	TOTAL	0	1	1	25	22	47	30	49	79	0	0	0	55	72	127
Southern Whitebelly	24	0	0	0	0	0	0	0	0	0	1	0	1	1	0	1
	25	6	6	12	0	0	0	0	0	0	5	5	10	11	11	22
	26	1	1	2	0	0	0	0	0	0	0	0	0	1	1	2
	44	0	0	0	0	0	0	0	0	0	11	19	30	11	19	30
	45	3	2	5	0	0	0	0	0	0	2	3	5	5	5	10
	46	1	4	5	0	0	0	0	0	0	0	1	1	1	5	6
	64	0	0	0	0	0	0	0	0	0	7	6	13	7	6	13
	67	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
	TOTAL	12	13	25	0	0	0	0	0	0	26	34	60	38	47	85
All stocks	TOTAL	14	18	32	34	37	71	32	50	82	32	38	70	112	143	255

Table 13. Sex data, from life history data for spinner dolphin, Stenella longirostris, in the observed kill, by stock, five-degree block and quarter of the year for 1983. Data collected by IATTC and NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1 M	F	TOTAL	QUARTER 2 M	F	TOTAL	QUARTER 3 M	F	TOTAL	QUARTER 4 M	F	TOTAL	ALL QUARTERS M	F	TOTAL
Common dolphin:																
Baja Neritic	169	0	0	0	5	10	15	0	0	0	0	0	0	5	10	15
	189	0	0	0	2	1	3	16	12	28	0	0	0	18	13	31
	TOTAL	0	0	0	7	11	18	16	12	28	0	0	0	23	23	46
Central Tropical	104	3	4	7	0	0	0	0	0	0	0	0	0	3	4	7
	105	1	5	6	0	0	0	0	0	0	0	0	0	1	5	6
	125	0	0	0	3	2	5	0	0	0	0	0	0	3	2	5
	TOTAL	4	9	13	3	2	5	0	0	0	0	0	0	7	11	18
All stocks	TOTAL	4	9	13	10	13	23	16	12	28	0	0	0	30	34	64

Table 14. Sex data, from life history data for common dolphin, Delphinus delphis, in the observed kill, by stock, five-degree block and quarter of the year for 1983. Data collected by IATTC and NMFS observers on U. S.-registered vessels.

SPECIES AND STOCK	5-DEG BLOCK	QUARTER 1 M	F	TOTAL	QUARTER 2 M	F	TOTAL	QUARTER 3 M	F	TOTAL	QUARTER 4 M	F	TOTAL	ALL QUARTERS M	F	TOTAL
Rough-toothed dolphin	130	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1
Bottlenose dolphin	105	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1
	127	0	0	0	0	0	0	0	0	0	2	0	2	2	0	2
	TOTAL	0	0	0	1	0	1	0	0	0	2	0	2	3	0	3

Table 15. Sex data, from life history data for rough-toothed dolphin, Steno bredanensis, and bottlenose dolphin, Tursiops truncatus, in the observed kill, by five-degree block and quarter of the year for 1983. Data collected by IATTC and NMFS observers on U.S.-registered vessels.

Length (cm)	Northern Offshore 1982		Northern Offshore 1983		Southern Offshore 1982		Southern Offshore 1983		Coastal 1983	
	M	F	M	F	M	F	M	F	M	F
75-79	1									
80-84	3	4								
85-89	4		2				1	2		
90-94	2	5					1	1		
95-99	2	4				1	1	1		
100-104	2	7		2						
105-109	3	3						1		
110-114	2	3		1						
115-119	8	7		1	3					
120-124	7	15	2	1	1	1	1	1		
125-129	5	6	1	1	3	1				
130-134	5	7		1		1	1			
135-139	5	6		1	1	1	1			
140-144	9	6	1		1	1				
145-149	6	13	3	2	4	1		3		
150-154	19	14	4	5	3	2	3	2		
155-159	21	16	8	6	11	5	1			
160-164	18	28	8	12	8	9	2	11		
165-169	24	29	9	13	10	11	4	4		
170-174	32	31	9	7	9	16	9	3		
175-179	31	37	10	12	9	21	4	10		
180-184	23	66	10	7	5	32	4	15		
185-189	28	87	5	23	11	37	5	17		
190-194	26	80	17	22	9	33	5	22		
195-199	46	57	8	18	12	13	6	9		
200-204	43	26	6	2	9	2	10	4		
205-209	33	13	4		5	1	6			
210-214	19	5	6		4		2			
215-219	8	1	2		3		1		1	
220-224	7									
225-229	1									
230-234										
235-239										
240-244										
245-249										
250-254	1									
Total	444	576	115	137	121	189	68	106	1	0

Table 16. Length frequencies for 1757 spotted dolphins, Stenella attenuata, in the observed kill, by stock and sex, for 1982 and 1983; data collected by IATTC and NMFS observers on U.S.-registered vessels.

Length (cm)	Unidentified 1982		Unidentified 1983		Eastern 1982		Eastern 1983		Northern Whitebelly 1982		Northern Whitebelly 1983		Southern Whitebelly 1982		Southern Whitebelly 1983	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
75-79		1								1	1				1	
80-84	1										2	2				
85-89													1	1		
90-94					1			1								
95-99										1						
100-104																
105-109					1	1										
110-114																
115-119					1	1										
120-124						3		1	1							
125-129						1	1			3	2		1			
130-134				1					3				1			
135-139					1	1	1		1			1	1	1		
140-144					1			1	1	4		1				
145-149					2	3		3	3	2	4	2		1	1	
150-154		2			5	4	1	1	2	2	2	4		3	2	2
155-159	1	1			3	5	2	2	5	9	6	3	1	2		
160-164	1	1			8	8	4	3	5	11	5	5	2	3	1	2
165-169	1	1			9	15	2	3	9	6	4	8	4	7	2	2
170-174	1				8	15	1	2	8	13	5	13	3	9		3
175-179	1				11	4	3	4	4	15	8	17	15	9	2	11
180-184					5	5	4	2	9	7	8	10	13	10	5	15
185-189					2	1			6	8	6	6	11	9	15	8
190-194									4	6	2		11	2	6	3
195-199									5				5	2	2	1
200-204									1				1	1	1	
205-209									1	2						
210-214										1						
215-219																
220-224																
Total	6	6	0	1	58	67	19	23	68	91	55	72	70	60	38	47

Table 17. Length frequencies for 681 spinner dolphins, Stenella longirostris, in the observed kill, by stock and sex, for 1982 and 1983; data collected by IATTC and NMFS observers on U.S.-registered vessels.

Length (cm)	Common								Striped	
	Baja Neritic 1983		Northern Tropical 1982		Central Tropical 1982		Central Tropical 1983		Southern Temperate 1982	
	M	F	M	F	M	F	M	F	M	F
75-79										
80-84										
85-89										
90-94	1					1				
95-99					1					
100-104										
105-109										
110-114										
115-119										
120-124										
125-129										
130-134										
135-139						1				
140-144					1					
145-149	1	1			1					
150-154		1								
155-159					1	1				
160-164						2		1		
165-169						1		1	1	
170-174		2					1	1		1
175-179	1				1	1	1			
180-184	1			1		2	2	3		
185-189	1	1	1	1		5		1		
190-194	2	1	1			8				
195-199		3				8	1	1		
200-204		3			1	4		2	1	
205-209	2	3			3	5		1		1
210-214	2	2			2	1	1			
215-219	3	2			2				2	
220-224	3	3			1					
225-229	4	1								
230-234	2						1			
Total	23	23	2	2	14	40	7	11	4	2

Table 18. Length frequencies for 122 common dolphins, Delphinus delphis, and 6 striped dolphins, Stenella coeruleoalba, in the observed kill, by stock and sex, for 1982 and 1983; data collected by IATTC and NMFS observers on U.S.-registered vessels.

Length (cm)	Rough-toothed dolphin				Bottlenose dolphin			
	1982		1983		1982		1983	
	M	F	M	F	M	F	M	F
125-129		1						
130-134								
135-139								
140-144								
145-149								
150-154								
155-159								
160-164								
165-169								
170-174		1						
175-179								
180-184								
185-189		1						
190-194								
195-199								
200-204		1						
205-209								
210-214		1		1				
215-219		1						
220-224	1	1				1		
225-229	1							
230-234								
235-239		1						
240-244								
245-249								
250-254							1	
255-259								
260-264							1	
265-269							1	
270-274								
Total	2	8	0	1	0	1	3	0

Table 19. Length frequencies for 11 rough-toothed dolphins, Steno bredanensis, and 4 bottlenose dolphins, Tursiops truncatus, in the observed kill, by sex, for 1982 and 1983; data collected by IATTC and NMFS observers onU.S.-registered vessels.

	Northern Offshore				Southern Offshore			
	1982		1983		1982		1983	
	N	%	N	%	N	%	N	%
Maturity undetermined	337	58.0	62	45.3	79	41.8	69	65.1
Sexually immature	89	15.3	38	27.7	43	22.8	15	14.2
Sexually mature:								
Condition undetermined	0	0.0	0	0.0	1	0.5	0	0.0
Pregnant only	39	6.7	10	7.3	15	7.9	4	3.8
Pregnant and lactating	9	1.6	4	2.9	5	2.6	0	0.0
Lactating only	78	13.4	21	15.3	30	15.9	6	5.6
"Resting"								
With corpus luteum	4	0.7	0	0.0	3	1.6	2	1.9
Without corpus luteum	23	4.0	2	1.5	13	6.9	10	9.4
Post-reproductive	2	0.3	0	0.0	0	0.0	0	0.0
Total	581	100.0	137	100.0	189	100.0	106	100.0

Table 20. Reproductive condition for 1013 female spotted dolphins, Stenella attenuata, in the observed kill, by stock, for 1982 and 1983; data collected by IATTC and NMFS observers on U.S.-registered vessels.

	Spinner				Common	
	Eastern		Northern Whitebelly		Central Tropical	
	N	%	N	%	N	%
Maturity undetermined	45	67.1	63	69.2	26	65.0
Sexually immature	15	22.4	19	20.9	7	17.5
Sexually mature:						
Condition undetermined	0	0.0	0	0.0	0	0.0
Pregnant only	1	1.5	1	1.1	1	2.5
Pregnant and lactating	0	0.0	0	0.0	1	2.5
Lactating only	6	9.0	3	3.3	4	10.0
"Resting"						
With corpus luteum	0	0.0	0	0.0	1	2.5
Without corpus luteum	0	0.0	5	5.5	0	0.0
Post-reproductive	0	0.0	0	0.0	0	0.0
Total	67	100.0	91	100.0	40	100.0

Table 21. Reproductive condition for 158 spinner dolphins, Stenella longirostris, and 40 common dolphin, Delphinus delphis, in the observed kill, by stock, for 1982; data collected by IATTC and NMFS observers on U.S.-registered vessels.